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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,771

04/21/2006

Henrique A. Cazaroto

SN140 PCT 1

8203

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7590

06/22/2009

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EXAMINER

BADR, HAMID R

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

06/22/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents.admin@dowcorning.com

Office Action Summary	Application No. 10/576,771	Applicant(s) CAZAROTO ET AL.	
	Examiner HAMID R. BADR	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4 and 7-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicants' amendment filed on 3/11/09 is acknowledged.

Claims 1, 4, 7-14 are being considered on the merits.

Claim Objections

Claim 15 is objected to for being on the same page with remarks. All claims should be on separate pages from other parts of specification or remarks/arguments. Correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 7-10, are rejected under 35 U.S.C. 102(b) as being anticipated by Gossn (FR 2 508 471; Examiner's translation, hereinafter R1).

3. R1 discloses the use of untreated or oxidized vegetable oil or animal fat in chemical methods of foam control. (page 5, first paragraph) Given this disclosure any vegetable oil or animal fat can be the base oil in an antifoaming composition. All oils and fats are antifoaming agents.

4. R1 discloses an anti-foam composition comprising essentially a polydimethylsiloxane, a silica, a polyoxypropylene, a non-ionic surfactant and a

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dispersing agent. The composition serves to control foam in processes for obtaining alcohol in sugar cane fermentation (aqueous media) (page 1, lines 1-3).

5. R1 discloses the antifoam comprising essentially a polydimethylsiloxane liquid having a viscosity of about 20 mm²/s at 25C (this is equivalent to 20 mPa.s as presently claimed), a silica composition, a polyoxypropylene having a molecular weight of 1000-6000, a non-ionic surfactant and a dispersing agent. (page 6, lines 12-26).

6. R1 discloses that if one wishes the composition may also contain a siloxane resin (page 6 line 36 to page 7 line 2).

7. R1 discloses that the viscosity of the polydimethylsiloxane can be 20-2000 mm²/s at 25C (about 20-2000 mPa.s). The terminal group of the polydimethylsiloxane is not critical but it is preferable to have trimethoxy or hydroxyl groups (page 7, lines 10-13). While the compound is available commercially, one can also synthesize it. (page 7, lines 16-19).

8. R1 discloses that the silica component is preferably a precipitated silica, a silica gel, fumed silica or a silica which has been treated to carry organosilyl groups (page 7, lines 20-23).

9. R1 discloses the polyoxypropylene component having a molecular weight between 1000-6000. A part of the polyoxypropylene can be replaced by a copolymer polyoxypropylene/polyoxyethylene. The polymer can carry methyl, ethyl or propyl terminal groups. However, one notes that the commercial products carry hydroxyl terminal groups and the artisan name them propyleneglycols incorrectly without distinguishing them if they are monols, diols, triols or polyols. (page 8, lines 5-27).

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10. R1 discloses the role of the dispersion agent is to make the ingredients compatible in the anti-foaming composition. R1 discloses that the dispersing agent can be the product of the reaction of a siloxane resin (25%) and a copolymer of propylene oxide/ethylene oxide (75%). The dispersing agent can also be obtained by the reaction of siloxane resin (36%) and propyleneglycol (64%) (page 9, lines 1-20). It is noted that the result of this reaction is the silicone polyether as presently claimed. This compound is used as a dispersing agent or emulsifier to stabilize emulsions.

11. R1 discloses that if one desires, the anti-foaming compositions can also contain another component which is a siloxane resin composed of SiO_2 units and $(\text{CH}_3)_3\text{SiO}_{1/2}$ units. Such resins are commercially available or can be prepared by synthesis. (page 9, lines 25-36).

12. R1 discloses that the order of mixing the ingredients is not critical (page 10, lines 6-8).

13. R1 discloses that the substances rapidly and efficiently disperse with minimum agitation (page 10, lines 32-35).

14. R1 discloses that the composition not only inhibits the foaming, but it also prevents foaming during the course of fermentation. (page 11, lines 7-10).

15. R1 gives methods of application of the anti-foam agent in Examples 1-10 where the volume of fermenting medium, the sugar content, the temperature and the volume of the anti-foaming composition used are discussed.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gossn (FR 2 508 471; Examiner's translation, hereinafter R1) in view of Raleigh et al. (US 5,451,692; hereinafter R2).

3. The disclosure by R1 is hereby incorporated by reference as outlined in paragraphs 3-15 above.

4. R1 is silent regarding the weight ratio of polydiorganosiloxane to polyglycol in the range as presently claimed.

5. Given that R1 discloses the incorporation of polydiorganosiloxane and polyglycol into the antifoam composition, determining the optimal ratios of these compounds would be within the skill of art.

6. R2 discloses the use of silicone polyether alkyl copolymers as emulsifiers in water in oil emulsions (Abstract).

7. R2 teaches of making water in oil emulsions comprising an oily phase, a discontinuous phase (water or alcohols) and the polyether alkyl copolymer as an emulsifier (col. 6, lines 35-43) for improved stability (Col.2, line 30). The oily phase can be paraffinic hydrocarbon liquids, mineral oils and petrolatum. (Col. 6, lines 44-46).

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8. Given that R2 is employing mineral oil as the oily phase of a water in oil emulsion, and given that mineral oils are also known to exert anti-foaming property when applied in aqueous systems, it would have been obvious to employ mineral oil as an emulsion forming component as taught by R2 or as an anti-foam component to complement the teachings of R1. Mineral oils are known in the art for their antifoaming properties.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gossn (FR 2 508 471; Examiner's translation, hereinafter R1) in view of FR 2 111 310 (Examiner's translation; hereinafter R3).

10. R1 is silent regarding the use of trialkylsilyl-terminated polydiorganosiloxane in the anti-foaming composition.

11. R3 discloses anti-foaming agents containing siloxanes (page 1, lines 1-3).

12. R3 discloses that the polydimethylsiloxane chains ends can be blocked or open. (page 1, lines 28-29). The end group could be hydroxyl group or advantageously it could be triorganosilyl groups, for example trimethylsilyl etc. (page 1, lines 29-33).

13. R3 teaches using polydimethylsiloxanes with trimethylsilyl terminal groups (page 3, lines 12-14).

14. Given that trimethylsilyl terminated polydimethylsiloxanes are disclosed by R3, any portion of the hydroxyl terminated polydimethylsiloxane disclosed by R1 may be substituted by the trimethylsilyl terminated compound as presently claimed (up to 75% w/w).

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15. R3 discloses that these compositions can be used in various applications or one can use them in the form of aqueous emulsions or dispersions in solvents (page 2, lines 36-39).

16. Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made to add to the fermenting liquor a polydimethylsiloxane with trimethyl -silyl terminal group. One would do so to enhance the anti-foaming properties of the compositions.

17. It would have been obvious to one of ordinary skill in the art, at the time the invention was made to use the anti-foaming composition as taught by R1 and to add polydimethylsiloxanes with trimethylsilyl terminal groups, as taught by R3. Absent any evidence to contrary and based on the combined teachings of the cited references, there would be a reasonable expectation of success in formulating a anti-foaming composition.

Response to Arguments

Applicants' arguments have been thoroughly reviewed. They are not deemed persuasive for the following reasons.

1. Applicants have amended claim 1 indicating that polydiorganosiloxane contains no solid particles. They further argue that R1 does not discloses that their polydiorganosiloxane contains no solids and that R1 discloses that the silica component is required in their antifoam composition.

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a. Firstly R1 discloses silica as one of the components of the anti-foam composition and not a component of polydiorganosiloxane as presently claimed.

Polydiorganosiloxane does not contain solid particles per se.

b. Further, it is noted that while R1 additionally discloses a silica component, in light of the open language of the present claims, i.e. "comprising", the claims are clearly open to the inclusion of additional components including solid particles such as silica.

2. Applicants argue that the rejections regarding claim 11 should be withdrawn because R1 and R2 can not be combined.

a. Applicants' argument regarding polydiorganosiloxane containing no solid particles was addressed above (please see 1a).

b. R2 has been indicated as non-analogous art by the applicants. However, R2 discloses the emulsification of oils using silicone polyether. It is obvious that addition of a hydrophobic oil to an aqueous medium to suppress the foaming will cause oil dispersion problems. Adding an emulsifier to the aqueous system will facilitate the dispersion of the oil and a more uniform distribution of the oil/antifoam compound in the aqueous environment. R1 (please see rejections under R1) solves the emulsification problem by incorporating non-ionic surfactants into the antifoam composition, therefore, looking for another emulsifier, as disclosed by R2, would be in the skill of the art.

Applicants are reminded that according to MPEP 2141.01 (a), a reference may be relied on as a basis for rejection of an applicant's invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent

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reference is further described as one which "even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." R2 is, therefore, reasonably pertinent references, because it teaches compounds useful for emulsification of oil/water emulsions, which is a function especially pertinent to the invention at hand.

3. Applicants argue that R3 does not disclose or teach that their compositions have antifoaming properties; therefore R3 is non-analogous art.

a. Please refer to paragraphs 11-14 above for the anti-foaming compositions disclosed by R3. R3 is a very analogous art because it discloses antifoaming compositions.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US3666681, US5082590, US4104186, US5271868, and US3984347.

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 1794

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